

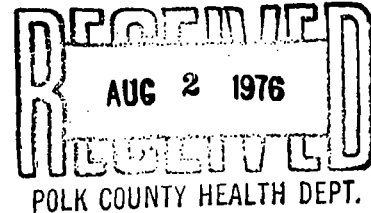


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

JUL 27 1976

Mr. D.E. Simpson
Project Engineer
USS Realty Development
Division of United States Steel Corporation
P.O. Box 2086
1555 West Main St.
Bartow, Florida 33830



Dear Mr. Simpson:

With reference to your letter of May 21, to Mr. Guimond, I wish to thank you for the opportunity to review the survey report of your Brittany Place Subdivision. From our review of the report, it appears that you have made a conscientious and responsible effort to determine the gamma exposure levels on your subdivision. If future measurements are made, you might consider calibrating the portable survey instrument against a portable ion chamber utilizing a slab source rather than a point source. We have had favorable experience using this technique in the field for providing a more meaningful value.

The Environmental Protection Agency has no authority either to approve or disapprove your construction proposal. Thus, any statement by us in this regard would be inappropriate. However, we believe specific building sites within your subdivision that meet our interim recommendation (i.e., less than 10 $\mu\text{R/hr}$) should not result in excessive indoor radon daughter levels in the completed structures.

We have also reviewed the discussion by Dr. Bolch of the Agency's interim recommendations. He suggests a "design limit" of about 20 $\mu\text{R/hr}$ outside gamma. We assume he means the level above which either no construction would take place or appropriate control technology would be used. He appears to have arrived at this number by subtracting an indoor radon daughter level as a function of the outside gamma curve for nonreclaimed land structures from radon levels for a corresponding gamma curve derived for reclaimed land structures. This he refers to as the "technology-enhanced natural radiation" curve for this situation. We do not believe this treatment of the data to be appropriate. It is our opinion that the radon daughter levels measured in the Florida structures is primarily due to radon seepage from the ground into the structure and from exchange with the ambient air.



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As a result, all of the structures, whether on reclaimed land or not, would probably exhibit a similar relationship between outside gamma radiation and indoor radon daughter levels if we neglect ventilation rate and slab diffusion barrier differences. Therefore, we believe it would be more appropriate to subtract a constant value such as .003 WL from all of the data points in order to correct for "normal" background instead of a "variable" background value. In developing his curves Dr. Bolch weighted each data point by the number of samples taken in the structure. We do not believe this to be defensible, because one could skew the data by obtaining more samples in structures of low radon daughter levels than high ones or vice versa. We suggest that using the average of several measurements for each structure is more reasonable.

Although there may be administrative and policy differences in dealing with high radioactivity in unmined phosphate land as opposed to reclaimed phosphate land, it must be recognized that two houses with the same indoor radon daughter level would pose a similar health risk irrespective of whether the land is reclaimed or not. Consequently, we must be careful in comparing elevated levels in structures on reclaimed land with similar levels on unmined land.

In conclusion, it is important to recognize that while we do not expect structures built on land with a gamma exposure less than 10 μ R/hr to result in indoor radon daughter levels greater than .01 WL, this value has not been selected as the applicable limit for the Florida situation. Further, the EPA interim recommendations were not designed to present a definitive relationship between outside gamma radiation and indoor radon daughter levels. Rather, their purpose is to provide reasonable assurance that structures built on Florida phosphate land do not exhibit indoor radon daughter levels substantially in excess of normal background.

We commend you on your continuing efforts to provide a radiological assessment of your proposed building sites and would be pleased to assist you with your future evaluations.

Sincerely yours,


William A. Mills, Ph.D.

Director

Criteria & Standards Division (AW-460)
Office of Radiation Programs